CLINICAL AND SERIAL ECHO DOPPLER FOLLOW-UP OF A NEW PORCINE BIOPROSTHESIS (MEDTRONIC INTACT).

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The clinical and serial hemodynamic characteristics of a new bioprosthetic valve (Intact) were evaluated in 117 patients in whom 122 (81 AVR, 28 MVR, 5 DVR, 3 PVR) were implanted between July 1986 and Aug. 1988. Clinical follow-up was complete for 108/109 (99%) survivors of whom 54 (40 AVR, 18 MVR) underwent initial echocardiography (2DE) at 13±8 months and and 38 underwent repeat 2DE at 30±8 months post-op. Intact peak aortic Δ P and MVA were compared to those of clinically normal other bioprostheses studied consecutively in our laboratory. Results (Δ P, mmHg) and areas (cm^2) are mean ± SD.

Patient survival at mean follow-up of 27±9 months was 84±3%. Intact MVA (1.7±.3) was similar to 13 Ionescu-Shiley (1.9±.4) and 11 Carpentier-Edwards (2.0±.4). Intact peak aortic Δ P (38±12) was significantly greater (p<.01) than 19 Ionescu-Shiley (24±8), 10 Carpentier-Edwards (28±8) or 21 Hancock (16±7). For the AVR patient group having repeat 2DE:

		ECHO 1		ECHO 2	
SIZE	N	PEAK Δ P	MEAN Δ P	PEAK Δ P	MEAN Δ P
21	10	42±13	22±7	48±20	26±12
23	13	34±9	19±6	40±17	20±10
25	5	36±8	19±5	39±19	21±11

In this patient group the peak AV gradient increased from 37±11 to 42±18 (p=.08).

CONCLUSION: Intact mitral gradients and valves areas are similar to other bioprostheses. Despite patient clinical improvement Intact aortic valve gradients are high at early follow-up and there is a trend to higher gradients with time. The implications for valve durability and patient outcome will be evaluated in long term follow-up.

PREDICTORS OF PRIMARY BIOPROSTHETIC HEART VALVE FAILURE - RESULTS FROM THE VA RANDOMIZED TRIAL

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To determine the predictors of primary bioprosthetic heart valve failure (central valvular regurgitation, or non-thrombotic valve obstruction resulting in death or reoperation) 49 preoperative, intra-operative and postoperative variables were analyzed in 291 adult male patients who were randomized to receive a bioprosthetic heart valve. The mean age at the time of operation was 60.2±7.9 yrs. for aortic and 56.3±7.1 yrs. for mitral valve replacement. At an average followup at 10 years, 20 patients developed primary valve failure (PVF). The probability of patients remaining free of PVF at average followup at 10 years was 0.95 ± 0.02 for aortic and 0.78 ± 0.07 for mitral valves. Age, ejection fraction, valve location, aortic cross clamp time, post pericardiotomy syndrome, post operative endocarditis, and long term anticoagulation were significant predictors of PVF univariately. Multivariate (Cox Model) analysis to determine the variables independently predictive of PVF were post pericardiotomy syndrome (0.0054), ejection fraction (0.0218), use of diuretics (0.0374), and valve location (0.0884). The incidence of PVF was 8.7% (16/183) in patients who were on diuretic therapy and 3.7% (4/108) in those who were not on diuretics. Level of serum creatinine or presence of renal failure were not related to PVF in this group of patients. We conclude that preditors of PVF in adult male patients are different from those of the younger patients.

CORONARY REATTACHMENT IN RESECTION OF THE AORTIC ROOT

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Indication for resection and grafting of the aortic root is dilatation and dissection; this operation needs coronary reattachment. In dilatation of the aortic root, when displacement of the coronary orifices is not superior to 2 cm, direct reattachment to the aortic graft was performed; in case of further displacement, Cabrol's technique was used; in acute infracoronary dissection, venous graft interposition was employed and the distal end of the vein was anastomosed to both coronary arteries beyond the limit of dissection. At our Institution from 1975 to 1989, 173 resection of the aortic root were performed with coronary reattachment: 78 for dilatation and 95 for acute and chronic dissection; in 49 patients resection of the aortic valve and ascending aorta was performed, in 107 resection of the aortic valve, ascending aorta and arch and in 17 simultaneous resection of the whole aorta. Direct reattachment was used in 73 patients, prosthetic graft interposition in 40, and venous graft bypass in 59; the age of the patients ranged from 48 to 82 years, mean age 68. Overall early mortality rate was 13,29% (23/173). There were 8 late deaths; no patient to date has required reoperation for problems related to the aortic root reconstruction with the technique described. We believe that coronary reattachment should be performed with different techniques according to indication.

Thursday, March 7, 1991
Poster Displayed: 9:00AM–12:00NOON
Author Present: 9:00AM–10:00AM
Hall F, West Concourse
Postoperative Studies

INSENSITIVITY OF ROUTINE SURVEILLANCE FOR PREDICTING EARLY AND LATE CARDIAC ALLOGRAFT LOSS DUE TO REJECTION

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Rejection (REJ) remains a common and sometimes unpredictable cause of graft loss (GRL) following cardiac transplantation (TP). Of 247 heart transplants performed to July 1990, REJ was the cause of GRL in 35% overall; 10/47 early (≤90 d) GRL and 14/22 late (>90 d) GRL (p<0.01). Early GRL due to REJ occurred at 43±19 d (range 7-81 d) and late GRL due to REJ at 510±375 d (range 129-1140 d). Sudden unexpected death (SD) was the manifestation of REJ in 3 of 10 ≤90 d and in 8 of 14 >90 d. Early post TP, biopsies performed within 0-12 d of GRL showed moderate to severe REJ in 6 resulting in treatment but in 4, GRL occurred 3-12 d after biopsies showing minimal changes only. Withdrawal or noncompliance with cyclosporine resulted in 4 late GRL due to REJ but in the remainder, immunosuppression was considered optimal. Late GRL occurred in 7 despite normal recent biopsies and/or coronary angiograms. Both early and late, the most specific post-mortem pathologic finding in all REJ was marked epicardial inflammation, often associated with pericardial effusion. Unlike early GRL due to REJ, cellular rejection was notably absent or mild in late GRL but all had acute and/or chronic vascular rejection. Coronary arterial fibrointimal hyperplasia was found in 4 patients with early GRL due to REJ and in all patients with late GRL due to REJ. Widespread microinfarcts were seen in all but 1 heart with late GRL due to REJ, in 4 with early GRL due to REJ, but were found on antemortem biopsy in only 2.

Thus: 1) vascular REJ is a common cause of GRL late post TP and may not be easily detectable by routine surveillance, 2) SD is common in all REJ, 3) presentation with cardiac failure, new effusion, or the the finding of microinfarcts on endocardial biopsy should be attributed to and treated as REJ.